



DEFENSE SUSTAINMENT CONSORTIUM



E-Portal for Obsolete Parts

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Systems Engineering Conference
Tampa, FL

Electronic Parts Obsolescence: A Large and Growing Problem

Major Drivers for Fielded Systems

- Costs – Inventory, Redesign
- Availability

Primary Causes

- Commercial Product Life Cycle
- Shrinking Market Presence
- Small Quantity Requirements

Contributing Factors

- Extended Service Life of Systems
- Long Development Lead Times (new or redesign)

Solutions Difficult

- Fragmented markets & information sources



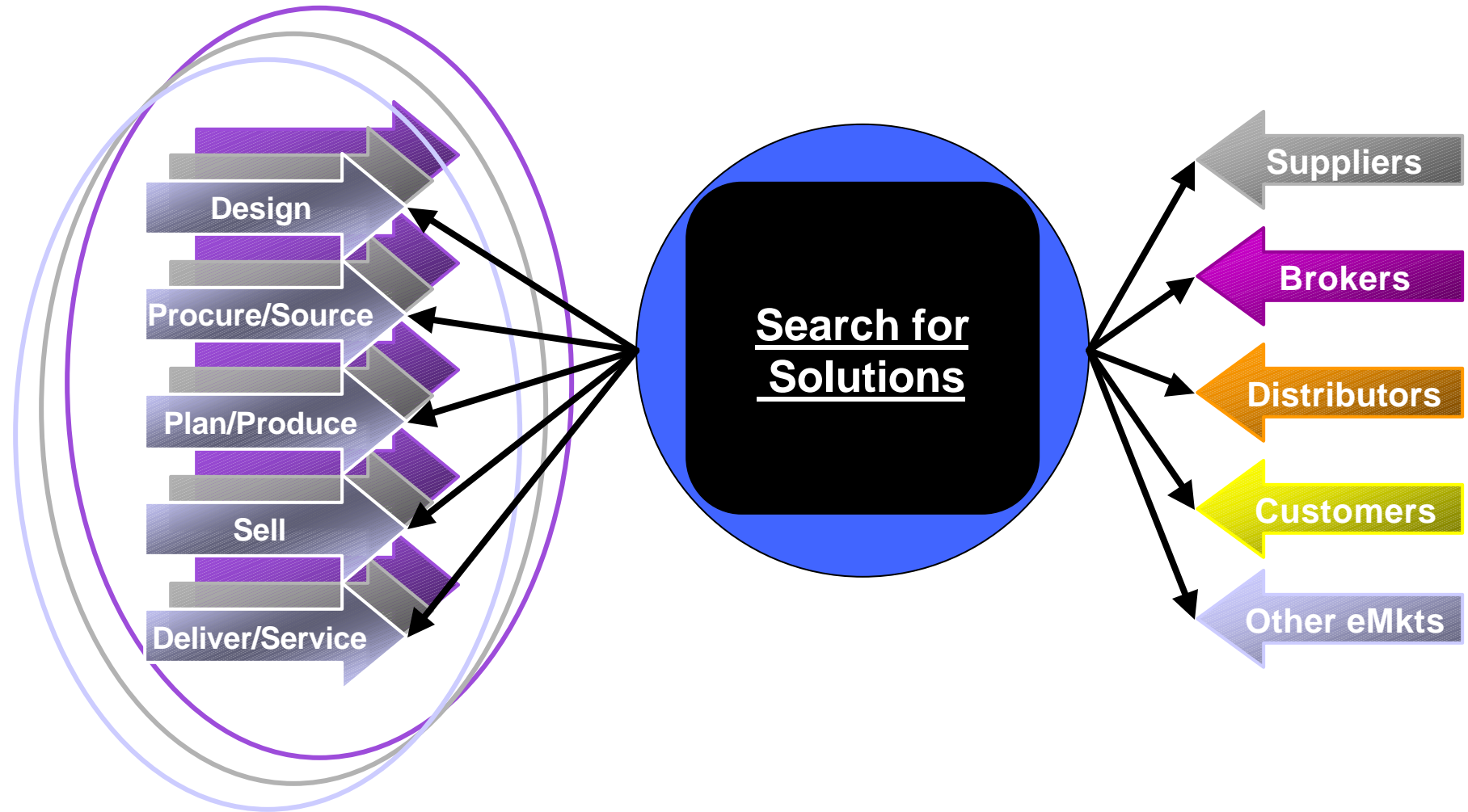


Obsolescence Resolution Lifecycle

E-Portal Focus

- Forecast demand
- Identify obsolescence issue
- Determine impact of obsolescence
- Identify potential solutions — — — — ^{linked}
- For each application, select solution —
- Engineering change
- Procure solution — — — — —

Multiple Types of Solutions from Multiple Sources (Highly Complex)





Selected Solution Drives Cost

<u>Resolution¹</u>	<u>Average NRE Cost</u>
Existing Stock	\$ 0
Reclamation	1,884
Alternate	6,384
Substitute	18,111
Aftermarket	47,360
Emulation	68,012
Redesign - Minor	111,034
Redesign - Major	410,152
Life of Type buy	--

^[1] McDermott, Jack, Jennifer Shearer, Walter Tomczykowski. *Final Report – Resolution Cost Factors for Diminishing Manufacturing Sources and Material Shortages*. February 1999. <www.dmea.osd.mil/recofac.pdf> (Accessed September 29, 2000).

E-Portal Pilot Project

- Funded by Defense Sustainment Consortium
- Objective to determine if current electronic commerce tools can reduce costs associated with obsolete parts through more effective and efficient procurement solution identification

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E-Portal Phase 1

Demonstrate Technical Feasibility

- Single tool for identifying multiple solutions “One-Stop-Searching” (part, stock, service, emulation) from disparate sources
- SmartSearch to enhance searching through learning and leveraging experience
- Linking to and from related E-initiatives

Demonstrate Business Benefits:

- Quicker resolution
- Larger number of possible solutions
- Lower cost solutions
- Improved ease of use



Searching Multiple Sources

- Commercial services like CAPSXPert – individual catalogs
- Bringing sources together is difficult
 - Different part categorization (data schema)
 - Different part parametric data
 - Different part parametric data descriptions
 - Inconsistencies within data (data quality)
- Solutions include data mapping and cleansing



Smart Searching

- Find best solution from many alternatives (lowest lifecycle cost)
- Expand search by looking for parts that are parametrically similar to target part (fuzzy search) – existing tools have hard parametric limits
- Narrow search by sorting results based on learned user preferences – existing tools require engineer to examine each resulting part.



SmartSearch Process

- User specifies a part as a target P/N
- SmartSearch queries the catalog (or collection of catalogs) to determine the parametric description of the target,
- SmartSearch identifies those parts in the catalog that are most similar to the target.
 - Determination of part similarity is adaptive for each user. System maintains a set of profiles for each user
- SmartSearch sorts that list according to the profiles of the users.
- SmartSearch groups types of solutions together (like solutions previously found by others).



Next Steps

- To get full benefit, must be deployed commercially
- Multiple users
 - OEM's
 - New production
 - Repair
 - Repair depots
 - Limited need
 - On-going need
 - Expert and occasional users
- Link to procurement



Potential Benefits

- On-Line tools lead to more effective searches
 - Lower level (less costly) solution
 - Find solution that can be implemented faster
 - Costs of downtime (dollars, availability)
 - Find lateral transfers
- Better searches – more complete
- Faster searches – solutions nearer surface
- Integrated into overall business process



BUSINESS CASE FOR ALL STAKEHOLDERS

- Solutions Engineer - easier to find solutions
- OEM – better solutions, dispose of excess inventory
- Catalog owners – sell parts
- Buyers – find stocks of parts
- DOD – lower overhead from holding inventory
- Portal Owner – Sell subscription service



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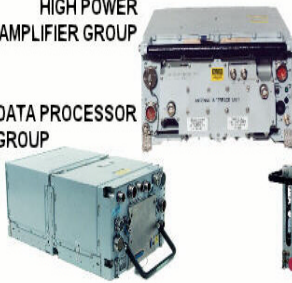
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